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Does prey availability influence harbour porpoises (*Phocoena phocoena*) diet, abundance and distribution?

Mahfouz Celine(1), Françoise Henry(2), Tarik Meziane(3), Florence Caurant(4), Sylvain Pezeril(5), Thibaud Bouveroux(6), Thierry Jauniaux(7), Gaby Khalaf(8), Rachid Amara(9)

(1) *Laboratoire d'Océanologie et de Géosciences, 32 Avenue Foch, Wimereux, 62930, France.*

(2) *University of Lille Nord de France, France Université du Littoral, ULCO, LOG, F – 62930 Wimereux, France CNRS, UMR 8187, F – 62930 Wimereux, France.*

(3) *UMR-CNRS-IRD-UPMC 7208, BOREA, Département Milieux et Peuplements Aquatiques, MNHN, CP 53, 61 Rue Buffon, 75231, Paris Cedex 05, France.*

(4) *Littoral Environnement et Sociétés, UMR 7266 CNRS – Université La Rochelle, 2 Rue Olympe de Gouges, F-17042, La Rochelle Cedex 01, France.*

(5) *Observatoire pour la Conservation et l'Etude des Animaux et Milieux Marins- OCEAMM, F-59123, Zuydcoote, France.*

(6) *Observatoire pour la Conservation et l'Etude des Animaux et Milieux Marins- OCEAMM, F-59123, Zuydcoote, France.*

(7) *Department of Pathology, Faculty of Veterinary Medicine, B43 Liège University, 4000 Liège, Belgium.*

(8) *CNRS, National Centre for Marine Sciences, Batroun, Lebanon.*

(9) *University of Lille Nord de France, France Université du Littoral, ULCO, LOG, F – 62930 Wimereux, France CNRS, UMR 8187, F – 62930 Wimereux, France.*

Throughout the last years, harbour porpoises (*Phocoena phocoena*) population has witnessed a southward shift in the North Sea. This shift has led to an increase in number of stranding porpoises in the Southern North Sea and English Channel. We studied the feeding ecology of harbour porpoises and their potential preys through three complementary methods. The fatty acid (FA) composition of the inner blubber and stable isotopic signatures ($\delta^{13}\text{C}$ and $\delta^{15}\text{N}$) of the muscle were determined in 59 harbour porpoises stranded along the Southern North Sea between 2010 and 2013. In addition, samples of 14 potential prey species collected in winter and late spring were analyzed. Results were compared with the FA and isotopic signatures of 34 porpoises stranded in the Bay of Biscay between 2009 and 2012. Finally when not empty, stomach contents of porpoises stranded in both regions were analyzed to provide information on their recent diet. The results of the study were analyzed and discussed in relation with the evolution of the spatial and temporal distribution and abundance of prey species. The hypothesis of changes in porpoises abundance and distribution depending on prey changes availability was evaluated.